

UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

ANNUAL REPORT OF RESEARCH FACILITY  
(TYPE OR PRINT)

1. REGISTRATION NO. 13-R-001

FORM APPROVED  
OMB No. 0570-0036

2. HEADQUARTERS RESEARCH FACILITY (Name and Address, as registered with USDA. Include Zip Code)

University of Vermont  
116 Hills Building  
Burlington, VT 05405-00082

NOV 18 2002

3. REPORTING FACILITY (List all locations where animals were housed or used in actual research, testing, teaching, or experimentation, or held for these purposes. Attach additional sheets if necessary)

FACILITY LOCATIONS (Sites)

Given Facility

Ungulate Facility

REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY (Attach additional sheets if necessary or use APHIS FORM 7023A.)

A.  Animals Covered By The Animal Welfare Regulations	B. Number of animals being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but not yet used for such purposes.	C. Number of animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use of pain- relieving drugs.	D. Number of animals upon which experiments, teaching, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs were used.	E. Number of animals upon which teaching, experiments, research, surgery or tests were conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs would have adversely affected fire procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests. (An explanation of the procedures producing pain or distress in these animals and the reasons such drugs were not used must be attached to this report).	F.  TOTAL NO OF ANIMAL  (Cols. C + D + E
4. Dogs	0	0	13	0	13
5. Cats	0	0	0	0	0
6. Guinea Pig	0	228	98	0	326
7. Hamsters	0	0	0	0	0
8. Rabbits	0	119	102	0	221
9. Non-human Primates	0	0	0	0	0
10. Sheep	0	0	0	0	0
11. Pigs	0	16	54	0	70
12. Other Farm Animals	0	0	0	0	0
Cows	0	0	4	0	4
13. Other Animals	0	0	0	0	0
Deer Mice	0	15	0	0	15

ASSURANCE STATEMENTS

- 1) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anesthetic, analgesic, and tranquilizing drugs, prior to, during, and following actual research, teaching, testing, surgery, or experimentation were followed by this research facility.
- 2) Each principal investigator has considered alternatives to painful procedures.
- 3) This facility is adhering to the standards and regulations under the Act, and it has required that exceptions to the standards and regulations be specified and explained by the principal investigator and approved by the Institutional Animal Care and Use Committee (IACUC). A summary of all such exceptions is attached to this annual report. In addition to identifying the IACUC-approved exceptions, this summary includes a brief explanation of the exceptions, as well as the species and number of animals affected.
- 4) The attending veterinarian for this research facility has appropriate authority to ensure the provision of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use.

CERTIFICATION BY HEADQUARTERS RESEARCH FACILITY OFFICIAL

(Chief Executive Officer or Legally Responsible Institutional Official)

I certify that the above is true, correct, and complete (7 U S C Section 2143)

SIGNATURE OF C.E.O. OR INSTITUTIONAL OFFICIAL

NAME & TITLE OF C.E.O. OR INSTITUTIONAL OFFICIAL

DATE SIGNED

11/5/2002

NOV 25 2002

See attached form for additional information

Interagency Report Control No.:

UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

1. CERTIFICATE NUMBER: 13-R-0009  
CUSTOMER NUMBER: 265

FORM APPROVED  
OMB NO. 0579-0036

ANNUAL REPORT OF RESEARCH FACILITY  
( TYPE OR PRINT )

Vermont Technical College  
Vermont Technical College  
P O Box 500  
Randolph Center, VT 05061

Telephone: (802) -728-3887  
1000

3. REPORTING FACILITY ( List all locations where animals were housed or used in actual research, testing, or experimentation, or held for these purposes. Attach additional sheets if necessary )

Morrill Hall  
and Live stock Building

FACILITY LOCATIONS ( Sites ) - See Attached Listing

REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY ( Attach additional sheets if necessary or use APHIS Form 7023A )

A. Animals Covered By The Animal Welfare Regulations	B. Number of animals being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but not yet	C. Number of animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use of pain- relieving drugs.	D. Number of animals upon which experiments, teaching, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, a	E. Number of animals upon which teaching, experiments, research, surgery or tests were conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs would have adversely affected the procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests. ( An explanation of the procedures producing pain or distress in these animals and the reasons such drugs were not used must be attached to	F. TOTAL NUMBER OF ANIMALS  ( COLUMNS C + D + E )
4. Dogs	0	5	7	0	12
5. Cats	0	8	4	0	12
6. Guinea Pigs	0	0	0	0	0
7. Hamsters	0	0	0	0	0
8. Rabbits	0	0	6	0	6
9. Non-human Primate	0	0	0	0	0
10. Sheep	0	7	0	0	7
11. Pigs	0	0	0	0	0
12. Other Farm Animals	0	0	0	0	0
Horses	0	0	4	0	4
13. Other Animals	0	0	0	0	0
Cattle	0	2	0	0	2

ASSURANCE STATEMENTS

- 1) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anesthetic, analgesic, and tranquilizing drugs, prior to, during, and following actual research, teaching, testing, surgery, or experimentation were followed by this research facility.
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- 4) The attending veterinarian for this research facility has appropriate authority to ensure the provision of adequate veterinary care and to oversee the adequacy of other aspects of animal care and

CERTIFICATION BY HEADQUARTERS RESEARCH FACILITY OFFICIAL  
( Chief Executive Officer or Legally Responsible Institutional Official )

SIGNATURE OF C.E.O. OR INSTITUTIONAL OFFICIAL

NAME & TITLE OF C.E.O. OR INSTITUTIONAL OFFICIAL ( Type or Print

DATE SIGNED

11/21/02

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additional information

NOV 25 2002 *js*UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE1. CERTIFICATE NUMBER: 13-R-0011  
CUSTOMER NUMBER: 14681FORM APPROVED  
OMB NO. 0579-0036ANNUAL REPORT OF RESEARCH FACILITY  
( TYPE OR PRINT )The Binding Site Vt, Inc.  
3697 Route 144  
Benson, VT 05743

Telephone: (802) -537-2255

2827

3. REPORTING FACILITY ( List all locations where animals were housed or used in actual research, testing, or experimentation, or held for these purposes. Attach additional sheets if necessary )

FACILITY LOCATIONS ( Sites ) - See Attached Listing

## REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY ( Attach additional sheets if necessary or use APHIS Form 7023A )

A.  Animals Covered By The Animal Welfare Regulations	B. Number of animals being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but not yet	C. Number of animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use of pain- relieving drugs.	D. Number of animals upon which experiments, teaching, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, a	E. Number of animals upon which teaching, experiments, research, surgery or tests were conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs would have adversely affected the procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests. ( An explanation of the procedures producing pain or distress in these animals and the reasons such drugs were not used must be attached to	F.  TOTAL NUMBER OF ANIMALS  ( COLUMNS C + D + E )
4. Dogs					
5. Cats					
6. Guinea Pigs					
7. Hamsters					
8. Rabbits					
9. Non-human Primate					
10. Sheep					
11. Pigs					
12. Other Farm Animals					
SHEEP		405	494		899
13. Other Animals					

## ASSURANCE STATEMENTS

- 1) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anesthetic, analgesic, and tranquilizing drugs, prior to, during, and following actual research, teaching, testing, surgery, or experimentation were followed by this research facility.
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( Chief Executive Officer or Legally Responsible Institutional Official )

SIGNATURE OF C.E.O. OR INSTITUTIONAL OFFICIAL

NAME &amp; TITLE OF C.E.O. OR INSTITUTIONAL OFFICIAL ( Type or Print )

DATE SIGNED

11-22-02

FORM APPROVED  
OMB NO. 0579-0036

MIDDLEBURY COLLEGE  
~~STO DEPT. MIDDLEBURY~~  
MIDDLEBURY, VT 05753  
(802) 443-5484 3262

STSS NOV 2  
Department

2002

FACILITY LOCATIONS(sides)

## Bicentennial Hall Animal Facility

## ASSURANCE STATEMENTS

4. The attending veterinarian for this research facility has appropriate authority to ensure the provision of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use.

## DATE SIGNED

11/25/02

PAK 1 - HEADQUARTERS

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UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

1. REGISTRATION NO.

13-R-0010

FORM APPROVED  
OMB NO. 0579-0036

2. HEADQUARTERS RESEARCH FACILITY (Name and Address, as registered with USDA, include Zip Code)

Middlebury College  
STSS Department  
Middlebury, VT 05753

CONTINUATION SHEET FOR ANNUAL REPORT  
OF RESEARCH FACILITY  
(TYPE OR PRINT)

REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY (Attach additional sheets if necessary or use this form.)

A. Animals Covered By The Animal Welfare Regulations  12. &/OR 13. Other (List by species)	B. Number of animals being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but not yet used for such purposes.	C. Number of animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use of pain-relieving drugs.	D. Number of animals upon which experiments, teaching, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs were used.	E. Number of animals upon which teaching, experiments, research, surgery or tests were conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs would have adversely affected the procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests. (An explanation of the procedures producing pain or distress in these animals and the reasons such drugs were not used must be attached to this report).	F. TOTAL NO. OF ANIMALS  (Cols. C + D + E)
deer mouse		10			10
red backed vole		1			1
Shrew(s) sp.		2		167	169
white foot mouse		26			26
EASTERN chipmunk		3			3
jumping mice				125	125
Peromyscus Sps				23	23
voles				35	35
Short tailed shrew				96	96
moles				2	2
Gerbils		18		6	24

ASSURANCE STATEMENTS

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CERTIFICATION BY HEADQUARTERS RESEARCH FACILITY OFFICIAL  
(Chief Executive Officer or Legally Responsible Institutional Official)

I certify that the above is true, correct, and complete (7 U.S.C. Section 2143)

SIGNATURE OF C.E.O. OR INSTITUTIONAL OFFICIAL

NAME & TITLE OF C.E.O. OR INSTITUTIONAL OFFICIAL (Type or Print)

DATE SIGNED

11/25/02

## Column E Explanation

This form is intended as an aid to completing the Column E explanation. It is not an official form and its use is voluntary. Names, addresses, protocols, veterinary care programs, and the like, are not required as part of an explanation. A Column E explanation must be written so as to be understood by lay persons as well as scientists.

1. Registration Number: 13-R-0010

2. Number 96 of animals used in this study.

3. Species (common name) Syrian hamster of animals used in the study.

4. Explain the procedure producing pain and/or distress.

Our work utilizes a controllable/noncontrollable stress paradigm to dissociate physical from psychological aspects of stress. In this model system, an animal pair receives identical physical stressors, but differs in the psychological aspect of control over the stressor. One animal, the executive, can terminate the stress through a bar press, while the yoked partner cannot. Thus, both animals receive the identical physical stressor in terms of amount, duration, and intensity, but differ only in the psychological aspect of coping. The stimulus intensity is 0.8mA, which is the minimum stimulus intensity aversive enough to motivate escape behavior. The shock boxes are connected to scrambled shock generators, and the lever press in the executive box is connected so that when the executive animal presses the bar, the shock is terminated in both the executive and yoked boxes. Our work has shown that the executive animal learns this behavior in 10-15 trials. If, on an individual trial, the executive animal makes no response, the shock will be terminated after 30 seconds. One session consists of 80 trials; the intertrial interval is a variable schedule ranging from 5 to 115 seconds, with a mean duration of 60 seconds. The average session lasts 90 minutes. Therefore, the total duration of shock is less than 5 minutes spread out over a 90 minute period.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

The mild stressor used in these studies is necessary to develop an animal model of human depression. Many of the characteristics of the yoked animal mimic what is observed in a depressed patient. Also, depressive episodes in humans can be triggered by exposure to uncontrollable stress. By using the executive/yoked animal model in the laboratory, we can examine the effects of stressors on the brain and how the psychological factor of coping alters the effects of the stressor. The ultimate goal is to try to apply these findings to the human condition, specifically the link between stress, depression, and the impact on reproduction. Relief of the stressor would be totally counter to the goals of the study.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

Agency \_\_\_\_\_ CFR \_\_\_\_\_

## Column E Explanation

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1. Registration Number: 13-R-0010
2. Number 446 of animals used in this study.
3. Species (common name) mice, voles, shrews, moles of animals used in the study.

4. Explain the procedure producing pain and/or distress.

These animals are non-target species (NTS) inadvertently caught in pit-fall traps set along side a drift fence to catch amphibians for an amphibian survey. The traps were open for 54 nights between October 1 2001 and September 30 2002 at study locations. The 100% mortality result from the animals falling into the trap and drowning due to about 1-2" of water that sits in the traps to keep the amphibians alive. The traps are fitted with platforms and when the protocol was renewed in 2002, the IACUC asked for an additional modification to the procedure. The PI placed dowels inside the traps to allow NTS to escape. Below are the data showing the results of adding dowels to the traps:

Species	Mortality	Without Dowels	With Dowels	% reduction
Jumping mice	125	115	10	91
<i>Peromyscus</i> species	23	19	4	79
Voles	35	28	7	75
Short-tailed shrews	96	77	19	79
Other shrews	165	158	7	96
Moles	2	2	0	100
Total	446	399	47	88

5. Provide scientific justification why pain and/or distress could not be relieved. Cite the methods used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

When an animal dies presumably due to drowning or exposure, the pain classification is always E. In this study, pain and distress could not be eliminated because the traps are set to trap amphibians and keep them alive. The traps in this study are only left open for 12 to 24 hours and even with more frequent checks, the animal mortalities are high because the small mammals die within 5-10 minutes of falling into the trap. Drift fences and pit traps are acceptable and effective methods for studying amphibians and eliminating them would negatively impact the survey.

The modifications to the traps is leading to fewer animal deaths, presumably because more NTS animals escaped.

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

Agency \_\_\_\_\_ CFR \_\_\_\_\_

Special Use:

### Column E Explanation

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1. Registration Number: 13-R-0010

2. Number 6 of animals used in this study.

3. Species (common name, Gerbils of animals used in the study.

4. Explain the procedure producing pain and/or distress.

A study conducted by students participating in a biology course, without consultation with the professor conducted an unauthorized experiment on 6 gerbils. The students exposed the gerbils to an unknown amount of noise (loud music) to determine if the animals' ability to navigate a "T" maze would be altered. Because the IACUC or the PI did not sanction the work, neither the IACUC nor PI knows the specifics (exact length, frequency, decibels, etc.) to completely address the question.

The IACUC conducted an investigation into this violation and reported its finding to OLAW.

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below)

Since the work was not part of an IACUC approved protocol, it was not reviewed by the IACUC. The investigation did not reveal the scientific justification for exposing the animals to the noise, other than it was reported that the noise was used to distract the animals. We can not completely address this question in the annual report due to a lack of information

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

Agency \_\_\_\_\_ CFR \_\_\_\_\_



Summary of Exceptions to the Guide for the Care and Use of Laboratory Animals:

Non -Standard Housing:

During this federal reporting year, there was one protocol that required 4 hamsters voluntarily exercise using rodent exercise wheels. The wheels' (5" in diameter) did not fit in the standard cages, so the researchers proposed modifying two 10 gallon glass aquariums so the wheels could be suspended 5" from the top of the aquarium. The aquarium dimensions were 10.5" by 20" with a 12.5 depth. The floor space was within the recommended limits of the Guide for hamsters approximately 80 grams in weight.

The cage contained normal bedding. The food and water were suspended 5" from the bottom of the aquarium and within the animal's reach. Standard stainless steel lids were used as a cover and were taped down to prevent them from sliding. The modification to the housing presented no physical hazard to the animals.